

Borehole

**41-07-12**Log Event **A****Borehole Information**

Farm : <u>SX</u>	Tank : <u>SX-107</u>	Site Number : <u>299-W23-73</u>
N-Coord : <u>35,397</u>	W-Coord : <u>75,668</u>	TOC Elevation : <u>663.17</u>
Water Level, ft :	Date Drilled : <u>2/16/1962</u>	

**Casing Record**

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>75</u>	
Type : <u>Steel-welded</u>	Thickness : <u>0.250</u>	ID, in. : <u>4</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>88</u>	

**Equipment Information**

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency : <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	

**Logging Information**

Log Run Number : <u>1</u>	Log Run Date : <u>6/8/1995</u>	Logging Engineer: <u>Mike Widdop</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>64.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>6/8/1995</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>63.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>78.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

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**Analysis Information**

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Analyst : D.C. StromswoldData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 7/26/1995**Analysis Notes :**

This borehole was logged in two runs. Gain drifts necessitated energy recalibration during spectrum analysis for proper peak identification.

This hole is somewhat unusual in the SX Farm because it is double cased. The double casing has a reported total thickness of 0.62 in.; the casing correction applied to the concentration data was that for 0.65-in. thickness.

The increase in K-40 concentration at about 65 ft is apparently related to a lithology change. Increases for U-238 and Th-232 also appear at this depth, although they are less distinct.

Cs-137 was the only man-made radionuclide detected, occurring almost continuously from the surface to a depth about 20 ft and at discontinuous locations to TD. More significant zones of Cs-137 were also identified from 54 to 56 ft (about 2 pCi/g) and from 61 to 66 ft (about 7 pCi/g). The highest concentration (about 18 pCi/g) was at a depth of 1 ft.

Radioelement concentration data from the depth overlap region of the borehole all showed good agreement.

In cases where a peak has a low activity, such as with Th-232, the MDA value shown on the log plot may be 0 pCi/g. This is the result of a calculation mistake in the spectrum analysis program and should be ignored. The mistake was corrected by the software manufacturer, but the log data were not reprocessed because the error has little significance to the assessment of the tank.

**Log Plot Notes:**

Three log data plots are provided: a Cs-137 log, a natural gamma log plot, and a combination plot. The Cs-137 log showed the concentration versus depth with the calculated MDA values shown as open circle data points. At locations where the Cs-137 concentration is less than MDA, it is considered a non-detect and the Cs-137 concentration is not calculated. The error estimation is shown by error bars representing the 95-percent confidence interval (2 sigma).

The natural gamma logs are shown in a separate plot to allow correlation of these data with the lithology. These data are also plotted with the calculated MDA values and the 95-percent confidence interval error bars.

The combination plot is provided for correlation purposes. It shows all of the detected parent radionuclides plotted with the total gamma log data and with the Tank Farms gross gamma log data.